One of the Applicant's inventions goes to monitoring a group of hydraulic structures without requiring that a gauge be placed at each structure. By using data collection, data for hydraulic structures where no gauge has been placed can be interpolated from nearby gauges or from environmental data. Thus, this invention permits groups of structures to be monitored with a lower cost because a gauge is not required when environmental data is used and a few gauges on nearby structures can be used to provide estimated data for hydraulic structures where no gauge exists.

The amendments made herein are made without prejudice or disclaimed to Applicant's right to pursue the same or similar subject matter in this or another application. Claims 1, 2, 7, 8, 10, 14, 16, and 17 have been amended to clarify the invention claimed. Claims 19 to 39 have been added. Claim 19 is dependent from claim 1.

Claims 20 to 24 claim systems for providing an alert when a threshold is exceeded. Claims 25 to 29 claim methods for providing an alert when a threshold is exceeded. These new claims are supported by the application as filed.

Claims 30 to 34 claim systems for prioritizing a list of hydraulic structures when a threshold is exceeded. Claims 35 to 39 claim methods for prioritizing a list of hydraulic structures when a threshold is exceeded.

Support for these amendments can be found throughout the application as filed and no new matter is introduced by these amendments.

Claims 1-6, 8-9, 11-13, and 15-18 Are Not Anticipated By Nevo et al. under 35 USC § 102

Claims 1-6, 8-9, 11-13, and 15-18 were rejected under 35 U.S.C. 102(b) as being anticipated by Nevo et al. All of the claims under this rejection depend from claim 1. With

respect to claim 1, the Examiner wrote that Nevo et al. disclose a computer system 15 to present

to a user data about the condition of a hydrological structure (col. 3, line 51). This is not

accurate. The sentence of Nevo et al. to which the Examiner refers actually recites that "the data

generated can have a wide application to a number of fields such as agronomy, geology, forestry,

long range weather forecasting, hydrology, animal husbandry and the like." Accordingly,

Applicant traverses this rejection on the basis that Nevo et al. do not recite a computer system to

present to a user data about the condition of a structure as recited in claims 1-6, 8-9, 11-13, and

15-18.

First, the structure of the forgoing claims refers to artificial hydraulic structures in a

hydrologic feature, e.g., a waterway or a body of water. To clarify this distinction, the claims

now refer to these structures as hydraulic structures. For example, hydraulic structures include,

but are not limited to, bridges, piers, abutments, levees, dams and culverts. See, e.g., p. 14, lines

12-13. Consistent with the field of hydrology, i.e. the study of the movement of water over the

earth's surface, hydrologic features include, but are not limited to, rivers, streams, causeways,

canals and lakes. See, e.g., p. 15, lines 5-6. See also, e.g. page 2, lines 1-5 (describing an

example of a bridge in a river, a waterway or a lake).

Second, Nevo et al. refer to the measurement of environmental conditions generally. The

passage in Nevo et al. to which the Examiner cites as referring to a hydrological structure (and

that Applicant quotes above) merely refers to the field of hydrology and not a hydraulic

structure. Given Nevo et al.'s context of the measurement of environmental conditions, Nevo et

al. do not teach or suggest a computer system with a database having structural data for a

hydraulic structure. In fact, Nevo et al. make no mention of any hydraulic structure. Without

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teaching a hydraulic structure as claimed, Nevo et al. cannot anticipate claims 1-6, 8-9, 11-13,

and 15-18. Accordingly, Applicant requests reconsideration and withdrawal of this rejection.

Claims 7, 10 and 14 Are Nonobvious Under 35 USC § 103 Over the Cited References

Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over Nevo et al.

Referring to claim 7, the Examiner wrote that Nevo et al. disclose a computer system to present

to a user data about the condition of a hydrological structure wherein the data source provides

structural data (col. 3, line 51). The Examiner admits that Nevo et al. do not disclose "in detail"

the structural data selected from the group consisting of structural detail, attributes, plans,

inspection reports, maintenance memos and bridge history data. However, the Examiner

believes that it would have been obvious to one having ordinary skill in the art at the time the

invention was made to have included the structural data to anticipate and possibly avoid future

adverse developments due to environmental changes. Additionally, claims 10 and 14 were

rejected under 35 U.S.C. 103(a) as being unpatentable over Nevo et al. in view of Orr et al. With

respect to claims 10 and 14, the Examiner provided additional detail that Applicant does not

repeat here. However, Applicant notes that the only citation provided for structural data in Orr et

al. is to col. 5, lines 61-67 and col. 6, lines 1-16. Applicant notes that the cited portion of Orr et

al. refers to general applications of the system of Orr et al. Nowhere does Orr et al. refer to a

hydraulic structure or to structural data about a hydraulic structure.

Applicant respectfully traverses the rejections of claims 7, 10, and 14. First, not only do

Nevo et al. fail to mention structural data "in detail", they fail to mention structural data at all

because they do not even mention hydraulic structures. In fact, the word "structure" only

appears in connection with political subdivisions, i.e., counties, towns and cities. See Nevo et al.

col 14, lines 41 to 43.

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Second, despite the admonition of <u>In re Lee</u>, the Examiner provides no indication from any reference of why or how one would have been motivated to include any structural data about a hydraulic structure, let alone the structural data of claim 7. In view of the absence of any structural data about a hydraulic structure and even the lack of a suggestion or motivation to use such structural data from any reference, the rejection of claim 7 should be reconsidered and withdrawn.

Third, the deficiency in Nevo et al. about structural data is not overcome by Orr et al. Orr et al. do not mention hydraulic structures and, accordingly, do not mention structural data about the hydraulic structure. The Examiner has pointed to no reference in Nevo et al. or Orr et al. that overcomes this deficiency by suggestion or motivation. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 USC § 103.

CONCLUSION

Based on the above Remarks, it is respectfully submitted that this application is in condition for allowance. Accordingly, allowance is requested. If there are any remaining issues or the Examiner believes that a telephone conversation with Applicant's attorney would be helpful in expediting the prosecution of this application, the Examiner is invited to call the undersigned at (617)832-1288.

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Respectfully submitted,

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MARKED-UP VERSION OF CLAIMS SHOWING CHANGES

In the claims:

1.   (AMENDED) A computer system to present to a user <u>interface</u> data about [the condition of] a [hydrological] <u>hydraulic</u> structure comprising:

[a] <u>at least one</u> database for receiving and storing data about the structure <u>wherein the stored data includes structural data about the structure</u>;

at least one data source for providing data about the structure;

a communication network for transmitting [the] data about the structure from the <u>at least one</u> data source to the database <u>or to the user interface</u> and for transmitting from the database to •[a] <u>the</u> user <u>interface</u>;

[a] <u>the</u> user interface for presenting to the user [the] data <u>about the structure</u> transmitted from the <u>at least one</u> database <u>or the at least one data source</u>.

2.   (AMENDED) The computer system of claim 1, wherein the data source provides hydrological data, meteorological data, <u>geological data</u> or [structural] <u>device</u> data.

7.   (AMENDED) The computer system of claim 1, wherein the data source provides structural data selected from the group consisting of structural detail, attributes, plans, inspection reports, maintenance memos and bridge history data.[.]

8.   (AMENDED) The computer system of claim 1, wherein the interface presents data from <u>at least a</u> first and a second data source.

10.   (AMENDED) The computer system of claim 8, wherein the first data is a map showing a meteorological condition and the second data is a map showing the location of [a] <u>the</u> structure.

14.   (AMENDED) The computer system of claim 1 wherein the user interface

comprises:

a general map of an area, showing [other] [hydrological] <u>hydraulic</u> structures <u>and</u>

<u>hydrological features</u> [waterways],

a second map showing detail such as the population density, detouring options for

traveling public, emergency facilities, existing evacuation routes, and real-time location of

safety personnel responding to the event, and

a comparative chart of a threshold for the area that has caused a warning signal to

be sent and a normal or expected data for the area.

16.   (AMENDED) The computer system of claim 1, further comprising [which can be

·used to] a means for calculating risk probability [prioritizing] <u>which can be used to</u>

<u>.prioritize the</u> deployment of emergency personnel in response to a threshold warning.

17.   (AMENDED) The [method] <u>computer system</u> of claim 16, wherein the means for

calculating risk probability uses a weighted risk function to create a ranking of risk

probability.

19. (NEW)   The computer system of claim 1, wherein the stored data includes

hydrological data, meteorological data, structural data, environmental data, geographical

data or device data.

20. (NEW)   A system for monitoring a hydraulic structure comprising:

a computer in communication with

a data source which provides measurement data representative of at least one

measurement of an environmental condition affecting the structure; and

a database which stores a predetermined threshold for the measurement data;

wherein the computer compares the measurement data with the predetermined threshold

and communicates an alert when the measurement data exceeds the threshold.

21. (NEW)   The system of claim 20, wherein the data source provides meteorological data, hydrological data, geological data, or device data.

22. (NEW)   The system of claim 20, wherein the measurement data is radar data, tide data, snow data, warning data, water flow data, water stage data, ice data, soil data, vegetation data, seismic data, or scour data.

23. (NEW)   The system of claim 20, wherein the alert is a page, a telephone call, a fax, or an email.

24. (NEW)   The system of claim 20, where in the alert identifies the threshold, the measurement exceeding the threshold, and the location of the structure corresponding to the threshold.

25. (NEW)   A method for monitoring a hydraulic structure comprising:

    receiving, over a communications network, measurement data representing at least one measurement of an environmental condition affecting the structure;

    storing a predetermined threshold for the measurement data in a database;

    comparing the predetermined threshold with the measurement data; and

    communicating an alert, via an interface, when the measurement data exceeds the threshold.

26. (NEW)   The method of claim 25, wherein the received measurement data is meteorological data, hydrological data, geological data, or device data.

27. (NEW)   The method of claim 25, wherein the received measurement data is radar data, tide data, snow data, warning data, water flow data, water stage data, ice data, soil data, vegetation data, seismic data, or scour data.

28. (NEW)   The method of claim 25, wherein the alert is a page, a telephone call, a fax, or an email.

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29. (NEW)   The method of claim 25, where in the alert identifies the threshold, the measurement exceeding the threshold, and the location of the structure corresponding to the threshold.

30. (NEW)   A system for prioritizing hydraulic structures comprising:

    a computer in communication with

        data sources which provide measurement data representing at least on measurement of an environmental condition associated with a plurality of hydraulic structures;
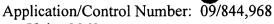
        at least one database which stores predetermined thresholds corresponding to the measurement data, wherein a threshold has an associated priority and structure;

    wherein the computer

        compares measurement data from one or more data sources with corresponding thresholds to identify exceeded thresholds;

        identifies structures corresponding to any exceeded thresholds; and

        prioritizes the identified structures based on the priorities of the exceeded thresholds.

31. (NEW)   The system of claim 30, wherein the data sources provide meteorological data, hydrological data, geological data, or device data.

32. (NEW)   The system of claim 30, wherein the data is radar data, tide data, snow data, warning data, water flow data, water stage data, ice data, soil data, vegetation data, seismic data, or scour data.

33. (NEW)   The system of claim 30, wherein the computer further provides an alert that identifies the exceeded threshold, the measurement that exceeds the threshold, the priority of the exceeded threshold and the location of the structure corresponding to the exceeded threshold.

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34. (NEW)   The system of claim 33, where in the alert is a page, a telephone call, a fax, or an email.

35. (NEW)   A method for prioritizing hydraulic structures comprising:

receiving, over a communications network, measurement data representing at least one measurement of an environmental condition associated with a plurality of hydraulic structures;

storing predetermined thresholds corresponding to the measurement data in a database wherein a threshold has an associated priority and structure;

comparing measurement data from one or more data sources with corresponding thresholds to identify exceeded thresholds;

identifying structures corresponding to any exceeded thresholds; and

prioritizing the identified structures based on the priority of the exceeded thresholds.

36. (NEW)   The method of claim 35, wherein the received measurement data is meteorological data, hydrological data, geological data, or device data.

37. (NEW)   The method of claim 35, wherein the received measurement data is radar data, tide data, snow data, warning data, water flow data, water stage data, ice data, soil data, vegetation data, seismic data, or scour data.

38. (NEW)   The method of claim 35, further comprising:

providing an alert that identifies the exceeded threshold, the measurement that exceeds the threshold, the priority of the exceeded threshold and the location of the structure corresponding to the exceeded threshold.

39. (NEW)   The method of claim 38, where in the alert is a page, a telephone call, a fax, or an email.